



Investigating the moderating effect of rewarding climate on Mastery Approach Orientation in the prediction of work performance

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The study of Mastery Approach Orientation as an achievement goal is central to the understanding of basic motivational processes though controversy surrounds its impact. This research extends the literature regarding this goal orientation by investigating the interaction between Mastery Approach Orientation and Rewarding Climate in the prediction of self and supervisors' ratings of work performance across two studies. Results indicated that Mastery Approach Orientation positively and consistently predicted self and supervisors' ratings of work performance at high Rewarding Climates. At low Rewarding Climates, the relationship between Mastery Approach Orientation and performance was more variable across the studies and reasons for this are explored.

Studying Mastery Approach Orientation has become a main focus of much research aiming to understand human behaviour and motivation (e.g., Godshalk & Sosik, 2003; O'Connor & Jackson, 2008). Mastery Approach Orientation focuses on task learning and the development of competence through mastering new situations and skills, understanding the task and use of self-referenced standards of improvement (Elliot & Dweck, 2005; Pintrich, Conley, & Kempler, 2003). Mastery Approach Orientation is known as an intrinsic motivation, since learning, understanding, solving problems, and developing new skills are ends in themselves and are intrinsically valued and important (Duda & Nicholls, 1992; Elliot & Church, 1997). It is the most clearly defined of the different goal orientations (e.g., Brett & VandeWalle, 1999) and is considered a somewhat stable individual differences variable (Dweck, 1986). It is commonly studied independently of other goal orientations or in conjunction with other perspectives (e.g., Jackson, Hobman, Jimmieson, & Martin, 2009). In view of suggestions made in the literature, we examine interactions between Mastery Approach Orientation and contextual cues in predicting everyday life outcomes. Such research is likely to have

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theoretical significance and provides powerful practical implications for how Mastery Approach Orientation is related to real-world outcomes.

In the past, Mastery Approach Orientation was widely accepted as a positive predictor of motivation and performance (Grant & Dweck, 2003). Mastery Approach Orientation is associated with positive affective, cognitive, and behavioural processes and orients individuals to move towards or maintain a desirable end state (Elliot & Thrash, 2002). However, there are also some ambiguities in the literature with regard to this goal orientation (DeShon & Gillespie, 2005; Elliot & Thrash, 2001). For example, whilst some research reports that Mastery Approach Orientation and performance attainment is positively associated (e.g., Vansteenkiste *et al.*, 2004), there is some evidence that Mastery Approach Orientation does not result in better performance and achievement (Barron & Harackiewicz, 2001; Elliot & Church, 1997) and yet other research finds no relationship (e.g., Brett & VandeWalle, 1999; Lee, Sheldon, & Turban, 2003). To explain these contradictions, some researchers have suggested that Mastery Approach Orientation does not affect performance but does result in deeper, more self-regulated learning, and better intrinsic task interest (e.g., Grant & Dweck, 2003; Hafsteinsson, Donovan, & Breland, 2007).

Mastery Approach oriented individuals are intrinsically motivated by competence development and choose challenging tasks to foster learning (Dweck, 1986). Yet such a perspective does not take into account the situational context which may lead to greater or lesser overall motivation to succeed. Extrinsic motivation, on the other hand, occurs when behaviour stems from a source outside the self, or the activity is undertaken as a means to some other ends or a separable outcome or reward such as money or grades (Deci, Koestner, & Ryan, 1999; Phares & Chaplin, 1997). Throughout the literature, it is argued that, intrinsic and extrinsic motivation operate simultaneously and should be taken into account together (Lepper & Henderlong, 2000). Such a viewpoint suggests that one reason why Mastery Approach Orientation does not always positively predict performance might be related to the situational context. In this research, we explore the interaction of Rewarding Climate as an index of situational context and Mastery Approach Orientation in the prediction of work performance. Similar to Lepper and Henderlong (2000), we believe that the time is ripe to begin to think of how intrinsic and extrinsic motivation interact and function together.

Mastery Approach Orientation and Rewarding Climate

Much of the work on Mastery Approach Orientation has been conducted with children in an educational context or in laboratory settings (Block, Roney, Geeter, Lopez, & Yang, 1995). Along with others (e.g., Midgley, Kaplan, & Middleton, 2001; VandeWalle, Brown, Cron, & Slocum, 1999), we think Mastery Approach Orientation needs to be tested across a range of different work contexts in which a range of behaviours may lead to success. Several recommendations have also been made to guide future research. Firstly, researchers should apply this construct to the prediction of performance in everyday life-situations. Secondly, researchers should consider the role of personal and contextual characteristics as moderators of the relationship between this construct and performance. Finally, researchers should consider different types of achievement situations, different types of achievement tasks, different subject populations, and examine a variety of variables (see Elliot, Shell, Henry, & Maier, 2005; Hafsteinsson *et al.*, 2007; Midgley *et al.*, 2001). Therefore, in light of these recommendations, the present research examines the moderating effect of rewarding climate on intrinsic

Mastery Approach Orientation in the prediction of three different work performance contexts in which performance is measure by self and supervisor ratings.

In workplace settings, one of the most important characteristics of the situation is climate such that 'the way people feel about where they work has a powerful impact on how they work and how hard they work' (Stringer, 2002, p. 67). Climate has been defined as simultaneously a set of organizational characteristics and the employee's perception of these characteristics (Stringer, 2002). It has been argued that to accurately predict performance in the workplace, perceptions of employees' climate must be taken into account (Stringer, 2002). The majority of climate theorists have pointed out that organizational outcomes such as productivity, performance, satisfaction, and personal growth are influenced significantly by climate (e.g., Griffin, 2001). At the individual level of analysis, climate relates to job satisfaction and work performance (e.g., Byrne, Stoner, Thompson, & Hochwarter, 2005).

Rewarding Climate is one of the critical aspects of psychological climate and has been the focus of much previous research (e.g., Bartol & Srivastava, 2002; Roch & McNall, 2007) such as how perceived work rewards predict organizational outcomes (e.g., Patterson, Warr, & West, 2004). Reward in the workplace can be understood in terms of predictable rewards such as salary and benefits or less predictable rewards such as promotion, bonuses, and results of appraisals.

As noted above, Mastery Approach Orientation is a positive process possibly related to successful achievement of tasks. We believe that the availability of extrinsic rewards will reinforce this process such that greater reward will strengthen of the relationship between Mastery Approach Orientation and performance. We think Mastery Approach Orientation is mainly an intrinsic process as argued in the mainstream literature (Barron & Harackiewicz, 2001; Deci & Ryan, 1985; Elliot & Thrash, 2002), but that the desire for positive affect resulting from goal attainment will lead to a strengthening of the relationship at high Rewarding Climates.

The current research explores individuals' perceptions of Rewarding Climate as a moderator of Mastery Approach Orientation in the prediction of different work contexts. Evidence in favour of this view would add availability of reward to the situations of when Mastery Approach Orientation is effective (Elliot *et al.*, 2005) and would show that extrinsic rewards can influence cognitive processes generally associated with intrinsic motivation.

Work contexts

The concept of work in the modern world is quite different from how it has been traditionally seen in the past. For example, team-based work is increasingly a central component of working life. Employees are now more required to update their skills and adapt to changes in organizational realities (DeShon & Gillespie, 2005). As such, new ways of thinking about work performance comprise both traditional definitions of work performance (specific behaviours within a job description), the changing nature of work, and the interdependence and uncertainty of work systems. Uncertainty concerns the lack of predictability in the inputs, processes, or outputs of work systems (Wall, Cordery, & Clegg, 2002). It influences the extent to which valued work behaviours can be formalized and determines whether employees simply need to perform the requirements of their work-role or they need self-directed action to anticipate or initiate change in the work system (Ilgen & Hollenbeck, 1991; Murphy & Jackson, 1999). Interdependence refers the extent to which work-roles are embedded within broader social systems and

determines the extent that employees' performance directly contributes to effectiveness at the individual level and/or indirectly impacts the effectiveness of others, including groups, teams, and the organization as a whole (Chan, 1998; Cummings & Blumberg, 1987).

In the current research, we use Griffin, Neal, and Parker's (2007) new measure of work performance which classifies work performance across three comprehensive and dynamic contexts. Instead of viewing job performance as unidimensional performance, this model of work performance regards work performance in three different contexts including Core Task, Work Team, and Organizational Performance and according to proficiency, adaptivity, and proactivity. According to this model, Core Task Performance is understood as the degree to which an employee arranges the expectations and necessities of his or her role as an individual. Work Team Performance reflects an individual's performance when they work in a team and specifies behaviours that contribute to team effectiveness rather than individual effectiveness. Organizational Performance refers to how behaviours contribute to organization effectiveness rather than individual and team effectiveness. The three types of work performance differ by nature such that Work Team and Organizational Performance are more discretionary and less likely to be monitored by management (see Chan, 1998; Griffin *et al.*, 2007).

Measurement of Mastery Approach Orientation

Controversy exists regarding the operationalization of goal orientation including Mastery Approach Orientation (Grant & Dweck, 2003; Hafsteinsson *et al.*, 2007). While there are two Goal Orientation Questionnaires applicable to the organizational field (e.g., Button, Mathieu, & Zajac, 1996; VandeWalle, 1997) they have several weaknesses such as poor psychometric properties (see Hafsteinsson *et al.*, 2007). To overcome these limitations in measurements, a new measure of goal orientation, Jackson's Goal Orientation Scale was developed for application in work contexts.

The current studies

We believe that high Mastery Goal Orientation followers will tend to show higher performance levels because of their high intrinsic motivation but that this relationship will be stronger at high Rewarding Climate because rewards provide the opportunity to become more aligned and focused on success and more able to cope with the negative features of the job. Our first hypothesis is that Mastery Approach Orientation positively relates to self-rated work performance across all levels of Rewarding Climate, and that high Rewarding Climate will strengthen the relationship between Mastery Approach Orientation and performance.

In addition, as most researchers rely on self-ratings of performance (Brett & Atwater, 2001), we explore whether there is a significant difference between self and supervisor's ratings of work performance. We think supervisors will have a different view of followers in a high Rewarding Climate compared to a low Rewarding Climate because followers are more likely to present themselves accurately when they can gain rewards. Jones and Fletcher (2002, p. 146) support this viewpoint and argue that 'it seems likely that individuals may be highly motivated to present themselves favourably if they perceive that their ratings may be linked to valued outcomes'.

Our second hypothesis is that Mastery Approach Orientation will only predict supervisor rated performance at high Rewarding Climate.

Given the use of a new measurement scale in this study, we investigated its properties prior to testing the hypotheses. We then investigated if work climate (low and high rewarding) interacts with Mastery Approach Orientation in the prediction of work performance. Additionally, to develop a better understanding of the nature of the relationship between goal orientation and performance, we examine this effect across three contexts of work performance utilizing different subject samples.

STUDY I: PREDICTING SELF-RATINGS OF PERFORMANCE FROM MASTERY APPROACH ORIENTATION WITH PART-TIME AND FULL-TIME WORKERS

Method

Participants

A total of 356 part-time workers also in tertiary education and 134 full-time workers from different organizations participated. Of participants, 58% were female and average age was 32.08 years ($SD = 4.26$; range = 17–47). Amongst part-time workers 13% worked in production, 28% in service, 15% in administration, 18% in education, and 24% other and there were some unspecified cases. On average 5% of them worked between 20 and 24 h per week, 83% worked between 16 and 20 h, 4% worked between 12 and 16 h, and there were some unspecified cases. Full-time workers were recruited from four schools (teachers and administrative staff) and from one hospital (nurses and administrative staff).

Procedure

Full-time employees were contacted through their organization. They were asked to complete a set of electronic surveys. Part-time employees completed the same set of electronically administered questionnaires in a room, under the direct supervision of a researcher and they received course credit in return for participation. Participation was voluntary and anonymous for all participants. The study followed APA ethical guidelines and received clearance from the University of Queensland, School of Psychology ethics committee. For each particular analysis, there was some variability in overall survey completion to comply with the ethical requirements which was that completion of questionnaires was optional.

Measures

All measurements are based on five-point Likert-type response scale, ranging from 5 (strongly agree) to 1 (strongly disagree).

Mastery Approach Orientation Questionnaire

Jackson's Goal Orientation Questionnaire (shown in Appendix together with administration instructions) includes subscales assessing three facts of goal orientation: Mastery Approach Orientation, Performance Approach Orientation, and Performance Avoidance Orientation. The items were written to capture general orientations applicable to the

work context. Mastery Approach Orientation includes seven items measuring the need to learn as much as possible and to understand a task, aim to gain broad and deep knowledge, willing to be challenged, putting more effort and strive to do better than past, learn to overcome mistakes. Throughout the literature these facets have been associated with the concept of Mastery Approach Orientation (e.g., Dweck & Leggett, 1988; Urdan, 1997; VandeWalle *et al.*, 1999). In comparison with VandeWalle's (1997) questionnaire, items are shorter and more tangible and therefore are likely to be clearer and easier to understand.

Factorial structure of Jackson's Goal Orientation Questionnaire

Using two different data sets before conducting the current research studies, we performed exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) of Jackson's Goal Orientation Questionnaire. We used EFA with the first sample which comprised of 412 people. In this sample, 71% were from the community through an on line survey and 29% were university students. Participants from the general community were recruited through contacts with the researcher and snowball sampling techniques. The mean age of participants was 31.27 ($SD = 4.56$, range 17-58) and 57% of them were female. They also completed the VandeWalle's (1997) Goal Orientation Questionnaire. Both Jackson's and VandeWalle's Goal Orientation Questionnaire utilize five-point Likert-type response scale ranging from 5 ('strongly agree') to 1 ('strongly disagree'). By employing the principal axis factoring method with direct oblimin rotation, we explored a three-factor solution as suggested by the scree-plot. These three factors accounted for over 48% of observed variance. All items loaded highly onto their respective factors with loadings all over .50.

We used CFA with the second sample which comprised 435 participants. In this sample, 73% were recruited from the community through an on-line survey and 27% were university students (Mean age = 33.47 years; range 18-65; $SD = 4.63$; 57% female). A CFA was performed to assess the factor structure of Jackson's Goal Orientation Questionnaire. Chi-squared was significant, $\chi^2(132) = 427.4, p < .001$, and examination of other indices of goodness of fit showed unsatisfactory evidence of a good fit (GFI = .92, AGFI = .90, CFI = .91, RMSEA = .07). The significant chi-squared should not be too critically interpreted as chi-squared tends to be significant when the sample size is high. Two items seemed likely to cross load on different scales and two items within scales seemed related enough to free their error covariance. Each new path significantly improved the model; after freeing the paths the modified model had an acceptable goodness of fit (GFI = .96, AGFI = .95, CFI = .95, RMSEA = .05). The results of EFA and CFA provide evidence in favour of the proposed three-factor structure (see Kaplan & Saccuzzo, 2005). The correlations between Jackson's scales with the equivalent scales from VandeWalle's questionnaire were all significant: Performance Approach Orientation ($r = .51, p < .001$); Mastery Approach Orientation ($r = .54, p < .001$); and Performance Avoidance Orientation ($r = .53, p < .001$).

According to Cohen (1988) correlation above .5 indicates a large (high) correlation and this supports the strong evidence of convergent validity of the Jackson's Goal Orientation Questionnaire. The alpha reliabilities of the three subscales of Jackson's Goal Orientation Questionnaire were all above .8. Jackson's Mastery Approach Orientation questionnaire used here is a shorter version of Jackson's Goal Oriented Achiever scale used in the Hybrid Model of Learning in Personality (Jackson, 2008; O'Connor & Jackson, 2008).

Occupational Climate Questionnaire

We used an adapted version of the Occupational Climate Questionnaire (Furnham & Gunter, 1993) including 10 items of the Rewarding Climate scale. Participants assessed the climate of their specific organization based on the extent they perceive it as rewarding. Using CFA, Levine and Jackson (2002) provided support for construct validity of this measurement using 153 employees in 17 departments across 2 stores. The reliability of the Rewarding Climate scale was .79 (Levine & Jackson, 2002). Example items for Rewarding Climate: 'In my organization good work is appropriately recognized', and 'In general people are adequately rewarded in my organization'.

Work Performance Questionnaire

This questionnaire (Griffin, Neal, & Parker, 2007) includes three subscales: *Core Task Performance*, this scale contains 11 items (alpha reliability = .87; Griffin *et al.*, 2007). Example items: thinking about how you have carried out your core job over the past 6 months, to what extent have you: ensured your core tasks are completed properly? Adjusted to new equipment, processes, or procedures in your core tasks? Initiates better way of doing your core tasks? *Work Team Performance*, this scale also contains 11 items (alpha reliability = .80; Griffin *et al.*, 2007). Example items: thinking about your role in your work unit over the past 6 months, to what extent have you: coordinated your work with team members? Responded constructively to changes in the way your team works? Developed new and improved methods to help your work unit perform better? *Organizational Performance*, this scale contains 9 items (alpha reliability = .80; Griffin *et al.*, 2007). Example items: thinking about your contribution to the organization over the past 6 months, to what extent you have: talked about the organization in positive ways? Fitted in with changes in the way the organization operates? Come up with the ways of increasing efficiency within the organization? The development and validation of this questionnaire is described by Griffin *et al.* (2007). They have reported support for the external validity of their proposed model by both supervisor ratings ($N = 491$) from 32 organizations and self-rating from employees in 2 organizations ($N = 1,228$ and 927).

Data analysis

In both studies, to test the main and interactive effects of Mastery Approach Orientation, we used hierarchical moderated multiple regression models using mean centred data to reduce effects of multi-collinearity. In Step 1, gender and age effects were entered. In Step 2, Mastery Approach Orientation and Rewarding Climate were entered. In Step 3, the Mastery Approach Orientation \times Rewarding Climate interaction term was entered. All variables within each step were entered at the same time. Acceptable effect sizes reported for interactions are typically small (i.e., R^2 change = .01-.03) for moderator effects in non experimental studies (Champoux & Peters, 1987); effect sizes reported in this paper are in this range. In our initial modelling, we tested for effects of hours worked and tenure but found that they were not significant and therefore excluded them from our results.

Results and discussion

Two univariate outliers in Work Team Performance were deleted. Mean, standard deviation, alpha coefficients, and correlations between variables are shown in Table 1.

Table 1. Mean, Standard deviation, Cronbach alpha, and the correlations between variables in Study I

	Mean	SD	α	1	2	3	4
1. Mastery Approach Orientation	28.99	3.35	.84				
2. Reward Climate	27.24	5.18	.89	.19**			
3. Team Performance	39.83	6.73	.88	.37**	.18**		
4. Organizational Performance	30.43	6.23	.87	.38**	.25**	.57**	
5. Task Performance	41.15	6.32	.88	.34**	.16**	.51**	.54**

** $p < .01$.

All alpha coefficients are greater than .82. The three measures of work performance are relatively highly intercorrelated. There are also moderately significant positive correlations between Mastery Approach Orientation and the measures of work performance. Rewarding Climate also has significant positive correlations with the measures of the three contexts of work performance.

Prediction of work performance from Mastery Approach Orientation and Rewarding Climate

Hierarchical moderated multiple regression models showed significant effects of gender in the prediction of Work Team ($\beta = 0.122$, $t = 2.67$, $p = .008$; $df = 484$), Organizational Performance ($\beta = 0.109$, $t = 2.65$, $p = .008$; $df = 482$) but not Core Task Performance ($\beta = 0.056$, $t = 0.96$, ns; $df = 425$). Females tend to be better performers than males. There was no significant main effect of age in the prediction of three contexts of work performance.

In the prediction of work performance from the proposed moderated multiple regression model, results show significant effects of Mastery Approach Orientation in the prediction of Core Task ($\beta = 0.359$, $t = 6.17$, $p = < .001$; $df = 425$), Work Team ($\beta = 0.336$, $t = 7.33$, $p = < .001$; $df = 484$), and Organizational Performance ($\beta = 0.364$, $t = 8.78$, $p = < .001$; $df = 482$). Also analysis showed a significant effect of Rewarding Climate only in prediction of Organizational Performance ($\beta = 0.234$, $t = 5.49$, $p = < .001$; $df = 482$).

There was a significant Mastery Approach Orientation \times Rewarding Climate interaction in the prediction of Core Task Performance ($\beta = 0.137$, $t(252) = 2.35$, $p = .01$; $R^2 = .166$, R^2 change = .018; $df = 425$). Simple slopes analysis shows that both at low ($\beta = 0.400$, $t = 2.95$, $p = .003$), and high Rewarding Climate ($\beta = 0.546$, $t = 5.67$, $p < .001$; Figure 1a) Mastery Approach Orientation is a positive predictor of core task performance

There was a significant Mastery Approach Orientation \times Rewarding Climate interaction in the prediction of Work Team Performance ($\beta = -0.154$, $t(420) = -3.36$, $p < .001$; $R^2 = .144$, R^2 change = .023; $df = 484$). The interaction is plotted in Figure 1b and simple slopes analysis shows that both at low ($\beta = 0.548$, $t = 5.69$, $p < .001$) and high Rewarding Climate ($\beta = 0.448$, $t = 4.09$, $p < .001$) Mastery Approach Orientation is a positive predictor of Work Team Performance.

There was significant Mastery Approach Orientation \times Rewarding Climate interaction in the prediction of Organizational Performance ($\beta = -0.107$, $t(485) = -1.90$, $p = .04$; $R^2 = .200$, R^2 change = .010; $df = 482$). As shown in Figure 1c, simple slopes analysis shows that both at low ($\beta = 0.654$, $t = 6.98$, $p < .001$), and high Rewarding Climate

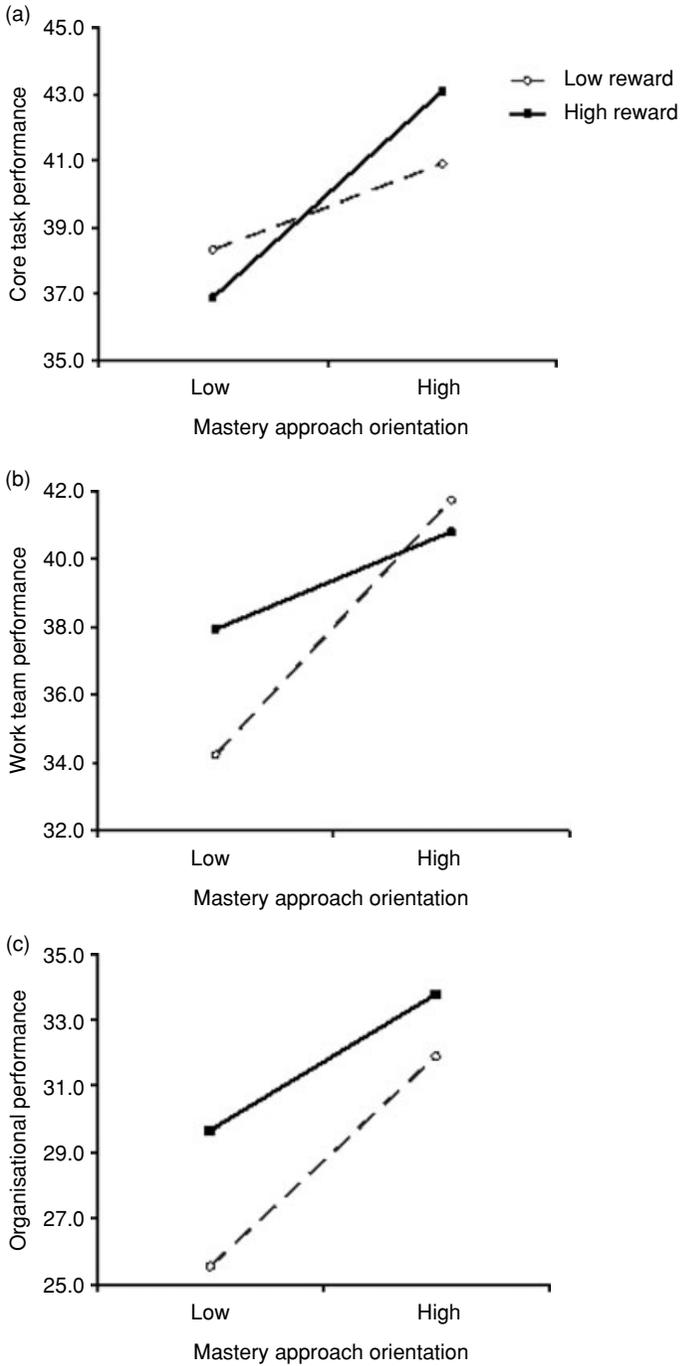


Figure 1. (a) Predicting Core Task Performance from the interaction between Mastery Approach Orientation (low and high) and Rewarding Climate in Study 1. (b) Predicting Work Team Performance from the interaction between Mastery Approach Orientation (low and high) and Rewarding Climate in Study 1. (c) Predicting Organizational Performance from the interaction between Mastery Approach Orientation (low and high) and Rewarding Climate in Study 1.

($\beta = 0.640$, $t = 6.30$, $p < .001$) Mastery Approach Orientation is a positive predictor of Organizational Performance.

Examination of Figure 1a–1c shows some similar relationships across the three contexts of work performance. Firstly, the significance of the interaction means two slopes are significantly different from each other which suggest that Mastery Approach Orientation predicts performance differently according to levels of Rewarding Climate. Secondly, in general, employees who work at high Rewarding Climate have better work performance than those who work at low Rewarding Climate (although this is only significant as a main effect for Organizational Performance). Thirdly, the significance of both slopes in three contexts of work performance indicates that Mastery Approach Orientation predicts all three contexts of work performance both at low and high Rewarding Climate.

The relationship between Mastery Approach Orientation and Core Job Performance at high Rewarding Climate supports Hypothesis 1 such that the relationship is stronger at high Rewarding Climate. Rewards in one's core job provides greater positive affect from goal attainment and are likely to provide the opportunity to become more aligned and focused on success and more able to cope with the negative features of the job.

However, there is a stronger relationship between Mastery Approach Orientation and Work Team Performance and Organizational Performance at low Rewarding Climate. These results are counter to Hypothesis 1 and can be interpreted in line with Mischel's (1977) perspective of strong and weak situations. Mischel defines strong situations as situations in which behavioural cues are salient, appropriate behaviours are clearly defined and there are also adequate incentives to engage in agreed behaviour. Weak situations on the other hand, lack such information. According to this perspective, individual differences are better predictors of performance in weak situations rather strong situations. Given that there is not much specific and clear indication for performing appropriately at low Rewarding Climates at types of works which are more discretionary and difficult to monitor, individual differences are likely to play a more significant role in determining this kind of behaviour (Mischel, 1977; Snyder & Ickes, 1985). Our findings regarding team and organizational activities are in line with this perspective.

Results of Study 1 with self-ratings of work performance provide evidence of significant interactions between Mastery Approach Orientation and Rewarding Climate in the prediction of three contexts of work performance. Simple slopes analysis shows that Mastery Approach Orientation is a positive predictor of work performance both at high and low Rewarding Climates. For Core Job Performance which is more salient and less optional, Mastery Approach Orientation predicts best at high Rewarding Climate. For Work Team Performance and Organizational Performance which are extra role behaviour, optional and not salient contexts of work, Mastery Approach Orientation predicts best at low Rewarding Climate.

STUDY 2: PREDICTING PERFORMANCE FROM MASTERY APPROACH ORIENTATION WITH SUPERVISOR RATINGS OF PART-TIME WORKERS

Results of the first study are based on self-ratings of participants's performance. Self-ratings of performance provide an accurate and valuable perspective (due to the potential for self-insight) and yet also a potentially lenient view of performance. Another potential

problem with self-ratings of performance is the possibility of common method variance leading to inflated correlations although this is unlikely to be a serious limitation given that it is a moderation study. To avoid being reliant on data from a single source, Study 2 utilizes supervisors's ratings of work performance as a way of validating and extending these results.

Method

Participants

A new sample of participants was recruited for this study including 117 participants (63% female; 37% male). The average age was 29.23 years ($SD = 4.58$; range 17–46 years). Of participants, 34% had full-time jobs and the remaining 66% had part-time jobs. Part-time workers were also in tertiary education; 16% were in production, 27% in service, 18% in administration, 19% in education, and 20% in other. In terms of number of hours of work 6% worked between 20 and 24, 84% worked between 16 and 20, and 7% between 12 and 16. Full-time workers were recruited from an architecture company, a hospital (nurses and staff), and a university (staff).

Procedure

All participants completed the same questionnaires as Study 1 except for the self-report measures of work performance which were not completed. Questionnaires were electronically completed under the direct supervision of a research assistant. All participation was entirely voluntary and anonymous. Once the questionnaires were completed, the immediate work supervisor of the participant was e-mailed and asked to complete a supervisor evaluation of the participant on the same three contexts of work performance measures used in first study except adapted for use by supervisors. Supervisor names and details were not saved during this process and supervisor and participant questionnaires were matched by a numerical code generated by the computer. This method of collecting supervisors's ratings has the strength that independent dyads are collected. This means that it is virtually certain that one supervisor rated just one worker from within just one organization. As contact details of the supervisors were not saved, it was not possible to send completion reminders.

Results and discussion

Mean, standard deviation, alpha coefficients, and correlations between variables are shown in Table 2. All alpha coefficients are greater than .81. The three measures of performance are intercorrelated. There are significant positive correlations between Mastery Approach Orientation and work performance contexts. In this study, there were no significant correlations between Rewarding Climate and work performance contexts.

Using hierarchical moderated multiple regression neither gender nor age effect's were significant in the prediction of supervisor ratings across the three work contexts. There was also no support for main effects of Mastery Approach Orientation or Rewarding Climate in the prediction of any work performance context.

There was a significant Mastery Approach Orientation \times Rewarding Climate interaction in the prediction of supervisor's ratings of Core Task Performance ($\beta = 0.240$,

Table 2. Mean, standard deviation, Cronbach alpha, and the correlation between variables in Study 2

	Mean	SD	α	1	2	3	4
1. Mastery Approach Orientation	28.98	3.36	.84				
2. Reward Climate	21.44	4.27	.81	.19**			
3. Supervisor ratings Team Performance	35.58	7.18	.91	.17*	.09		
4. Supervisor ratings Organizational Performance	29.99	6.45	.90	.18*	.08	.58**	
5. Supervisor ratings Task Performance	34.82	6.45	.90	.19*	.08	.55**	.59**

* $p < .05$; ** $p < .01$.

$t(111) = 2.37, p = .02; R^2 = .101, R^2 \text{ change} = .045; df = 112$). Simple slopes analysis shows that at high Rewarding Climate, Mastery Approach Orientation is a positive predictor of Core Task Performance ($\beta = 0.46, t = 2.67, p = .008$); but there was no significant relationship for low Rewarding Climate ($\beta = -0.03, t = -0.10, p = .9$; Figure 2a).

There was a significant Mastery Approach Orientation \times Rewarding Climate interaction in the prediction of supervisor's ratings of Work Team Performance ($\beta = 0.213, t(111) = 2.08, p = .04; R^2 = .076, R^2 \text{ change} = .036; df = 112$). The interaction is plotted in Figure 2b; simple slopes analysis shows that at high Rewarding Climate, Mastery Approach Orientation is a positive predictor of Work Team Performance ($\beta = 0.48, t = 2.10, p = .03$); but that the relationship is not significant at low Rewarding Climate ($\beta = -0.15, t = -0.39, p = .7$).

There was a significant Mastery Approach Orientation \times Rewarding Climate interaction in the prediction of supervisor's ratings of Organizational Performance ($\beta = -0.224, t(113) = -2.20, p = .03; R^2 = .090, R^2 \text{ change} = .039; df = 112$). As shown in Figure 2c, simple slopes analysis shows that at high Rewarding Climate, Mastery Approach Orientation is a positive predictor of Organizational Performance ($\beta = 0.47, t = 3.06, p = .002$); but there was no significant relationship for low Rewarding Climate ($\beta = -0.05, t = -0.15, p = .8$).

Results of Study 2 with supervisors's ratings of work performance across full-time and part-time job employees also provide evidence of significant interactions between Mastery Approach Orientation and Rewarding Climate in the prediction of three contexts of work performance. Simple slopes analysis shows that Mastery Approach Orientation is a positive predictor of work performance at high Rewarding Climate but not at low Rewarding Climate. These results suggest that supervisors perceive that the positive potential of Mastery Approach Orientation in predicting work performance is only in climates which are highly rewarding. We think that followers are more likely to present themselves accurately to supervisors when rewards are available. When rewards are not available, then followers are much less likely to present themselves accurately to supervisors. Such conclusions are in line with the views of Jones and Fletcher (2002).

Work performance in this research is seen as a multidimensional and complex behaviour in which formal and non-formal aspects of work performance are considered. At low Rewarding Climate, it is possible that employees do not present themselves accurately to supervisors because they are unsure of what behaviours to demonstrate.

Finally, it should be noted that Mastery Approach Orientation was also measured by VandeWalle's (1997) Goal Orientation Scale as well as Jackson's scale in both studies. We found very similar patterns but weaker results with VandeWalle's Goal Orientation

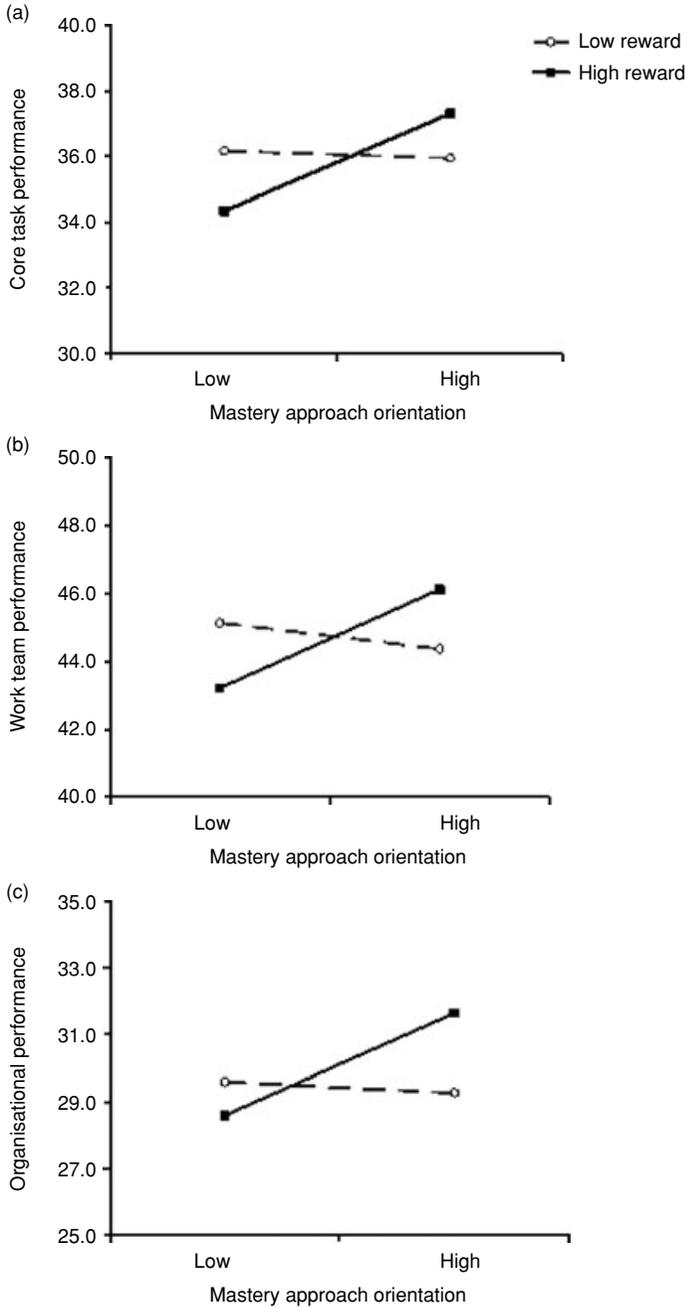


Figure 2. (a) Predicting supervisor ratings of Core Task Performance from the interaction between Mastery Approach Orientation (low and high) and Rewarding Climate in Study 2. (b) Predicting supervisor ratings of Work Team Performance from the interaction between Mastery Approach Orientation (low and high) and Rewarding Climate in Study 2. (c) Predicting supervisor ratings of Organizational Performance from the interaction between Mastery Approach Orientation (low and high) and Rewarding Climate in Study 2.

Scale across both studies. For these reasons, we report the results of Jackson's Mastery Approach Orientation scale only.

GENERAL DISCUSSION

The present research investigated the interaction between Rewarding Climate and Mastery Approach Orientation in the prediction of work performance. Several key innovations in the present research include the evaluation and use of a relatively new measure of Mastery Approach Orientation which is designed to have content more in line with the recent literature of goal orientation than existing questionnaires. Our use of Mastery Approach Orientation and Rewarding Climate enables us to study interactions between processes associated with intrinsic motivation and extrinsic motivation. Our study incorporates a comparison of both self and supervisors' ratings in the measurement of three different contexts of work performance: Work Team, Organizational, and Core Task Performance.

Results provided partial support for Hypothesis 1. Results of Study 1 showed that the relationship between Mastery Approach Orientation and self-rated Core Job Performance is stronger at high Rewarding Climate but weaker at high Rewarding Climate for self-rated Team and Organizational Performance. The first finding supports the hypothesis and was expected since it seems likely that reward will help align Mastery Approach Orientation towards effective performance. Reward likely provides the means for people to know where to direct their Mastery Approach Orientation to achieve success. The second finding was not expected and probably stems from the more discretionary nature of the work which, together with the low Rewarding Climate, provides a weak situation that may lead to individual differences playing a bigger role in performance than in stronger situations (Mischel, 1977).

The difference in results across self and supervisors's ratings in the prediction of the contexts of work performance appeared in relation to low Rewarding Climate. Specifically, Mastery Approach Orientation significantly predicted self-ratings of work performance at low Rewarding Climate but not supervisors's ratings. This finding supported Hypothesis 2 which was that supervisors perceive high mastery goals in followers who are able to accurately present themselves to supervisors due to the likely process of aligning themselves to achieve maximum rewards. In common with Jones and Fletcher (2002), we believe that followers are more likely to present themselves to their supervisors in a favourable and accurate manner if they are likely to receive some rewards.

Re-examination of our interaction plots shows the effectiveness of Mastery Approach Orientation in the prediction of performance. Although different for every plot, in general, a change of two standard deviations in Mastery Approach Orientation score was associated with about a change of one standard deviation in self-rated of work performance in low Rewarding Climate and about half a standard deviation in self-rated work performance in high Rewarding Climate. A change of two standard deviations in Mastery Approach Orientation was associated with about .7 of a standard deviation in supervisor ratings of work performance in high Rewarding Climate and about .3 of a standard deviation in low Rewarding Climate. These changes suggest a meaningful impact of climate on Mastery Approach Orientation in the prediction of work performance.

Our results suggest that consideration of a moderated variable helps to develop a clearer understanding of the nature of the relationship between Mastery Approach Orientation and performance. In addition, including both self and supervisor ratings

provide differing perspectives and help to identify consistency of findings. Evidence from the self and supervisor rating studies, across three contexts of work performance, suggests that best performance was generally and consistently related to high Mastery Approach Orientation and high Rewarding Climate. This is also in line with Lepper and Henderlong (2000) who argued that intrinsic and extrinsic motivation function together and operate simultaneously. As such, a practical implication of our study is that managers would be likely to benefit from high Work Team, Organizational, and Core Task Performance in their followers if they provide a highly Rewarding Climate and hire high mastery approach oriented people. This recommendation is supported by both self and supervisor ratings of work performance.

Our results however become more difficult to generalize beyond this observation since they then become dependent upon both the context of the work environment and the way in which performance is measured (as a self or supervisor rating). Studies 1 and 2 provide differing interpretations of how Mastery Approach Orientation predicts performance according to our measures of performance. Our studies recognize that the potential biases of both measures of worker performance but also recognizes that each provides a different and informative perspective. Self-ratings can be biased from a desire to present well but self-ratings are potentially informative due to self-insight. Supervisor ratings on the other hand can be more objective but may suffer from biases in terms of what behaviours employees are willing to present. Our use of three different contexts of work performance within each study adds further complexity to our results. For example, high Rewarding Climate is related to work performance but our results indicate that Mastery Approach Orientation can have a stronger effect at low Rewarding Climates than high Rewarding Climates when behaviour is more discretionary and when self-ratings are used to measure performance. Here, we think that the weaker situation (Mischel, 1977) allows for stronger effects of Mastery Approach Orientation.

In sum, this research supports the positive potential of Mastery Approach Orientation in the prediction of complex human behaviour in everyday life-situation as well as the importance of considering a moderator variable in this relationship. Moreover, throughout the literature, most discussion on goal orientation is based on self-ratings whereas the present research highlights the significance of supervisors's ratings in addition to self-ratings in the prediction of everyday life outcomes such as work criteria. The findings in the current research suggest that development of a good understanding of the nature of the relationship between Mastery Approach Orientation and performance requires examining this relationship in different circumstances (particularly in real-world situations), across different measures of performance (i.e., self vs. superior ratings of performance), and in different performance contexts/outcomes (i.e., Work Team, Organizational, and Core Task Performance). We argue that in real-life situations such as the workplace intrinsic and extrinsic motivation function together. A final contribution of this paper is to present an initial analysis of a new Mastery Approach Orientation Questionnaire.

Limitations of this study include the possibility of common method variance issues in Study 1 (although unlikely to be a strong problem in a moderation study) and it is important to note that we have not investigated causality in the current research. On the other hand, our research also has considerable strengths. In addition to self and supervisor ratings, we also have used a broader array of performance measures rather overall performance as often used in the literature. In addition, the generalizability of our findings is enhanced by using a heterogeneous and large group of employees across many organizations.

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Appendix

Jackson's Goal Orientation Questionnaire

Each item of this questionnaire is a statement that a person may agree with or disagree with. For each item, indicate how much you agree or disagree with what the item says. Please respond to all the items; do not leave any blank. Choose only one response to each statement. Please be as accurate and honest as you can be. Respond to each item as if it were the only item. That is, don't worry about being 'consistent' in your responses.

Performance Approach Orientation

- (1) I aim to do better than my peers
- (2) I set my goals higher than my peers
- (3) I aim to work harder than peers
- (4) Outperforming my peers motivates me
- (5) I want to do well compared to my peers
- (6) I enjoy proving my ability to others

Mastery Approach Orientation

- (1) I want to learn as much as I can
- (2) I need to understand what I do
- (3) I aim to gain broad and deep knowledge of my area
- (4) I am curious about what I do
- (5) I liked to be challenged
- (6) I strive to do better than I did last time
- (7) I learn to overcome my mistakes

Performance Avoidance Orientation

- (1) I worry about doing badly
- (2) Fear of low performance motivates me
- (3) I want to avoid looking bad
- (4) I am afraid to look foolish in front of my peers
- (5) I avoid work that makes me look bad

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